

Appl. No. : 08/932,228
Filed : September 17, 1997

12. (Amended) The isolation structure of Claim 11, wherein the recessed portion comprises a trench structure having [an aspect ration] a ratio of height to width of less than 2:1.

REMARKS

Claim Objections

The Examiner has objected to Claim 12 due to an informality. In response, Applicants have amended Claim 12 to replace "ration" with "ratio."

Rejections Under 35 U.S.C. § 112

The Examiner has rejected Claim 12 under 35 U.S.C. § 112, second paragraph, for indefiniteness, questioning what Applicants mean by "as aspect ratio."

Applicants submit that the term is well understood in the art and is furthermore defined at page 5 of Applicant's specification as a ratio of height:width. Accordingly, Applicants have amended Claim 12 to recite "a ratio of height to width" rather than an aspect ratio. The skilled artisan will understand that "height" and "depth" are used interchangeably when referring to trenches in semiconductor fabrication.

Rejections Under 35 U.S.C. § 102

The Examiner has rejected Claims 11, 14 and 15 under 35 U.S.C. § 102(b) as being clearly anticipated by Trumpp et al. (U.S. Patent No. 4,502,914).

Applicants have amended independent Claim 11 to further define the dielectric material as comprising a "halide-doped silicon oxide." Applicants submit that, as Trumpp et al. taught

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use of polyimide, which is a polymer, the claimed invention distinguishes the teachings of Trumpp et al.

Rejections Under 35 U.S.C. § 103

The Examiner has rejected dependent Claims 12 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Trumpp et al. in view of Swan et al. (U.S. Patent No. 5,356,828). Applicants respectfully submit that this rejection is moot in view of the amendment to independent Claim 11, discussed above.

The Examiner has also rejected dependent Claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Trumpp et al. In particular, the Examiner stated that "Although Trumpp et al. and Swan et al. do not teach exactly the material as that claimed by Applicant . . . [i]t appears that these changes produce no functional difference and therefore would have been obvious."

Applicants respectfully traverse this rejection. Claim 16 specifically recites "a Fluoride-doped silicon dioxide composition," which is neither taught nor suggested by the art of record.

Even if "no functional difference" were a proper formulation of the obviousness inquiry, Applicants submit that the formation of polyimide and halide-doped silicon oxide are very different and do constitute functional differences in the overall fabrication process and structure. While silicon oxide materials are clean and compatible with semiconductor fabrication, polymers such as polyimide contaminate semiconductor structures.

As the art of record does not teach or suggest use of halide-doped silicon oxides filling recessed portions of semiconductor substrates, Applicants respectfully submit that the Examiner

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has not presented a *prima facie* case of obviousness, and that the claims are allowable over the art of record.

CONCLUSIONS

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance and respectfully request the same. If the Examiner sees a remaining issue, however, the Examiner is cordially invited to call the undersigned to discuss such issue.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 9/16/98 Original signed by
J. B. BEAR

By: _____ Original signed by
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08/932,228



EXAMINER

ART UNIT	PAPER NUMBER
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DATE MAILED: 9/16/98

EXAMINER INTERVIEW SUMMARY RECORD

All participants (applicant, applicant's representative, PTO personnel):

(1) JAMES BEAR (attorney) (3) Tran, Minh Loan (examiner)

(2) Vu, Hung (Examiner) (4) _____

Date of Interview: 9/16/98

Type: ☐ Telephonic ☒ Personal (copy is given to ☐ applicant ☐ applicant's representative)

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description: _____

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Agreement ☐ was reached with respect to some or all of the claims in question. ☐ was not reached.

Claims discussed: 11

Identification of prior art discussed: _____

Description of the general nature of what was agreed to if an agreement was reached, or any other comments: _____

Applicant's attorney amends proposed the claim 11 in order to overcome the prior art of record. The examiner will reconsider the amendment. Further search will be done.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

☐ 1. It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph below has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW (e.g., items 1-7 on the reverse side of this form). If a response to the last Office action has already been filed, then applicant is given one month from this interview date to provide a statement of the substance of the interview.

☐ 2. Since the examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the substance of the interview unless box 1 above is also checked.

Hung Vu
Examiner's Signature

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